



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Environment protection in power engineering

### Course

Field of study

Power Engineering

Area of study (specialization)

-

Level of study

Second-cycle studies

Form of study

full-time

Year/Semester

1/2

Profile of study

general academic

Course offered in

polish

Requirements

compulsory

### Number of hours

Lecture

15

Laboratory classes

-0

Other (e.g. online)

-0

Tutorials

0

Projects/seminars

-0

### Number of credit points

1

### Lecturers

Responsible for the course/lecturer:

dr inż. Artur Bugała

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tel. 61 6652382

Faculty of Control, Robotics and Electrical

Engineering

Piotrowo 3A, 60-965 Poznań

Responsible for the course/lecturer:

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### Prerequisites

Basic knowledge in the field of electricity generation, knowledge of energy objects included in the power system, their construction and purpose. Ability to analyze the course of electricity generation processes.

### Course objective

The aim of the course is to familiarize students with:

- rules for organizing electricity generation processes and the use of technologically adapted devices for environmental protection,
- the impact of individual electricity generation technologies on the natural environment,
- methods to reduce the impact of generation on the state of the environment.



### Course-related learning outcomes

#### Knowledge

1. Student is able to determine the impact of processing various types of solid, liquid and gaseous energy fuels on the natural environment.
2. Student is able to characterize waste treatment technologies and methods of waste management.
3. Student knows and understands selected issues of energy law.

#### Skills

1. The student has the ability to design and analyze the work of selected installations and technological sequences using appropriate software, either proprietary or commercial.
2. Student is able to assess the energy efficiency of technical solutions and propose modifications leading to their improvement.

#### Social competences

1. Student is able to assess the energy efficiency of technical solutions and propose modifications leading to their improvement.

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Knowledge acquired during the lecture is verified at the colloquium carried out at the last lecture. The test consists of 10 test questions and 5 open questions, scored differently. The pass mark is 50% of the total number of points.

### Programme content

Lecture:

- selected electricity generation technologies,
- waste management,
- measurements of environmental pollution,
- unconventional methods of generating electricity.

### Teaching methods

Lecture: multimedia presentation (including drawings, photos, animations, sound, films) supported by examples given on the board.

### Bibliography

Basic

1. Kucowski J., Laudyn D., Przekwas M.: Energetyka a ochrona środowiska, WNT, 1994.
2. Krystek J.: Ochrona środowiska dla inżynierów, Wydawnictwo Naukowe PWN, 2018.



3. Lewandowski M., Ryms M.: Biopaliwa, Proekologiczne odnawialne źródła energii, WNT, 2013.

Additional

1. Paska J.: Wytwarzanie energii elektrycznej, Oficyna Wydawnicza PW, Warszawa 2005.

2. Laws, regulations and norms

**Breakdown of average student's workload**

	Hours	ECTS
Total workload	31	1,0
Classes requiring direct contact with the teacher	21	1,0
Student's own work (literature studies, preparation for test) <sup>1</sup>	10	0,0

<sup>1</sup> delete or add other activities as appropriate